

Lost Beneath the Comstock Lode

The Scenario

"This has got to be it," yells Harry. "My source said the terrorists' hideout was this old abandoned Comstock mine." You can barely hear him over the howling wind of the storm. "You put too much faith in your source, Harry," you yell back. "What if they are in there waiting for us?" Determined as always, Harry yells, "I say we go in anyway. This may not be it, but at least we'll be out of this blizzard!" You cautiously crawl under rotting boards and snag your jacket on a sign that says "CAUTION: DO NOT ENTER." The radio you are carrying squawks loudly as headquarters tries to contact you. "Keep that radio quiet," Harry whispers. "Too much noise can bring this thing down on top of us." You quickly answer the radio call, informing the main office of your location, "We're in Washoe County in an old abandoned silver mine." "Just be careful," the boss cautions when you tell him what Harry is up to now. "If you get trapped in there, it could be several days before we could get to you. We'd hate for you to miss the New Year's Eve party." You use your flashlights to move through carefully through the old mine. "Did they ever discover anything down here?" you whisper. "No," replies Harry, "they abandoned it before the project was finished." You explore for a few minutes but find nothing. Just as you are about to turn around and leave Harry says, "What's that ticking noise?" You turn the corner and there it is, the terrorists' headquarters. "Look!" you exclaim. In the middle of the floor is the "gift" the terrorists have left for you. A bomb.

"Let's get out of here!" shouts Harry. As you turn and race to get out, you hear a terrible rumbling sound and the ground begins to tremble underneath you. The old wooden support beams of the mine are shaking around you and you realize the terrorists must have exploded the entrance to the mine leaving you trapped. Suddenly, you hear a horrendous crash, and through the cloud of dust and debris you see a huge beam from the roof of the mine crashing down toward Harry. "Harry, look out!" you scream. But it is too late. As you rush toward him to push him out of the way, you hear what sounds like a gunshot inside your head, and you feel a searing pain for a split second before a merciful ocean of blackness envelops you.

You awaken in darkness. It's a miracle, but the cave-in did not set off the bomb. You grope around and find your flashlight. "Please, let it work," you pray. The light is very faint, the batteries are almost dead, but all around you can make out the wreckage of what used to be the terrorists' hide out. Then through the flickering light you see Harry trapped under a wooden beam. "Harry!" you moan. You stumble over to try to pull the huge wooden beam off him. Unfortunately, he is dead. You feel something wet dripping down the side of your face. It is blood. Through the quietness you hear the sinister ticking sound of the bomb, and as you turn your head toward it you see a small flashing light coming from it that you did not notice before. It's a timer and it is counting down with only 99 seconds left.

The entrance to the mine is blocked. Your only hope is to go deeper into the cave and try to escape the explosion. You try to contact headquarters for help, but you realize the radio was crushed in the cave-in. The list that follows describes those items that you see around you in the now demolished hide out. Quickly examining the wreckage scattered around, you grab ten items you think will help you survive until you can be rescued. And you run for your life.

The Items

1. Green plastic bottle labeled "L-Ascorbic Acid, 1000 mg"
2. Bag of Brim's® Pork Cracklin Dippers, 2.2125 oz.
3. Loaded pistol
4. Fifty kilogram tank of nitrous oxide
5. Plastic bottle labeled "Aspartyl-phenylalanine-1-methyl ester, 100 mg"
6. Forty square-meter sheet of yellow opaque polyhexamethylenedipamide with a tag labeled "Property of W. H. Carothers"

7. Backpack filled with maps of Nevada and books on the history of silver mining
8. Small bag labeled "due dozzine di limoni"
9. Flashlight without batteries in the battery case
10. Glass bottle labeled "Mercury/Tin amalgam"
11. Wooden crate containing bottles labeled "HCl(aq)" and "NaOH(aq)"
12. Wooden crate with two metal canisters labeled "VX"
13. Five liter bottle labeled "80% C₂H₅OH"
14. Small amber colored bottle labeled "Potassium"
15. Two liters of kerosene/oil mixture in a corked amber-colored bottle
16. Flat piece of broken glass
17. #10 Can of Saratoga Farms Freeze Dried Peach Slices
18. Five-milliliter plastic syringe with 5-cm needle
19. Fifty gram tube of zinc acetate ointment
20. Wooden box of brown glass bottles labeled "KClO₃"
21. One skein of white cotton yarn
22. Case of aluminum foil
23. Spool of copper wire
24. Wooden box labeled "paraffin"
25. Wooden box labeled "2, 4, 6-trinitrotoluene"
26. 250g bottle labeled MnO₂
27. Book entitled Modern Morse Code in Rehabilitation and Education: New Applications in Assistive Technology
28. "Elvis Lives" refrigerator magnet
29. Fox 40 Sonic Blast CMG Referee Whistle with neck lanyard
30. One meter of thin aluminum tubing
31. Metal container labeled "Promethium nitrate"
32. Wicker basket containing three live canaries

The Mission

From your knowledge of chemistry, survival tactics, and research information, choose only 10 items from the above list which will maximize your chances for rescue.

After you have carried your supplies to a safe distance, the bomb explodes, leaving **useless** debris strewn about the mine. Emptying the pockets of your Eddie Bauer parka you find, in addition to the other 10 items you had gathered only seconds earlier, a handkerchief, a passport, two quarters, three pennies, your lucky zinc penny, and a wallet containing a few credit cards, three \$50 bills, an address book, and a picture of your family. And now your attempt at survival begins.

The Journal

After your return to civilization, write an account of your survival. Your account must be in manuscript form and should include the three sections described below. In addition you must include a title page and a separate Works Cited section.

- 1) The ten items you chose and a brief explanation as to why each would be chosen by an expert survivalist/chemist;
- 2) Items that would have been good to choose, but you were not able to because you could only take ten, and your reasons why;
- 3) Items you absolutely do not want to take with you and your reasons why.

There is a useful reason for taking or a harmful result and reason not to take every item. **Do not ever write, "I had no use for this item."** A hint on how to start: first, prioritize your needs, i.e., food, shelter, water, signal, etc. Second, identify each item and determine under which category it would be used. The rest is up to you.

Please be advised, your research on these items will take a long time and putting your journal together will also take a great deal of work. Make sure you budget your time so that you have not only ample time for research, but also plenty of time to write your journal account and put it in its proper format. The following should be used as guidelines in presenting your journal account:

1. Each item you choose to discuss, whether in the first, second, or third section, must be internally documented separately, highlighted, and listed in its own separate paragraph. If several items are being used to make one thing, they may be included together in the same paragraph, but they must each be documented separately.
2. Even information that is common knowledge must be documented. If you write about all 32 items, you should have at least 32 separate internal references, one for each individual item, even if they all come from the same source. It will not be unusual for you to have more than one different internal reference for items. The internal documentation within the paper should follow immediately after the item is mentioned or when its use is described. (For the style of documentation to be used, see the end paragraph, *Documenting Your Research Paper*.)
3. You must have at least three different sources (that you may use multiple times), and only one of the three may be the Internet. However, once you have three different sources, you may use any one of them as many times as you need. For example, if you have two other sources besides the Internet, you may use the Internet as many times as you would like. You may not use Wikipedia or similar sites as a source.
4. **At the end of your account, include a bibliography or Works Cited. The entries in the Works Cited should be listed in the order that they occur in your paper, not in alphabetical order, using reverse indentation. The beginning of each Works Cited entry should match exactly the internal documentation that you had for that item in your paper.**
5. You must include hand drawn/traced illustrations to help explain your survival techniques. You may not use photocopies or computer printouts. At the bottom of each illustration, you must include internal documentation and the source must also be included in the Works Cited.
6. Make printed copies of the sources you use from the Internet and any books that aren't in our library. Copy the first page and the page(s) that you use, and highlight the portions that you use. Staple multiple pages.
7. Encyclopedia articles, dictionary entries, and Internet articles must be listed separately by the title of the article in both the internal documentation and the Works Cited.
8. Your journal account must be in manuscript form - typed and double spaced. You must include a title page, and every page following the title page must include your last name and page number in the top right hand corner. Check the Internet for samples of title pages and choose one that fits your own personal style.
9. Your journal must be put in the right pocket of an ordinary two-pocket folder. Do not put it in the brads. Put the copies of your sources in the left pocket of the folder in the order that they occur in your paper.
10. **The project is due at the beginning of the class period on the day assigned.** Because the project has been pre-assigned, no late papers will be accepted. If for any reason you are absent the day the project is due, it is still your responsibility to see to it that your paper is brought to school and turned in on time.

MANUSCRIPT FORM CHECKLIST (with points counted off):

- Title page (*minus 10 points*)
- Internal documentation (*paper will not be accepted without it*)
- Correct internal documentation (*minus 2 points for each occurrence, up to 20 points*)
- Three sections with each item underlined and in a separate paragraph (*minus up to 20 points*)
- Sources copied (*minus 25 points if none, or minus 2 points each*)
- Illustrations (*minus 20 points*)
- Illustrations documented (*minus 10 points*)
- Works cited (*paper will not be accepted without it*)
- Works cited manuscript form (*minus up to 20 points*)
- Internal references included in paper also in Works Cited (*minus 2 points each up to 20 points*)
- Copied sources or Works Cited not in the correct order (*up to 20 points, and paper may not be accepted*)

Documenting Your Research Paper

Internal documentation in your chemistry research paper will be different than a standard English research paper. If your source is a book with an author or editor, **use the last name of the author or editor and the copyright date of the work, not the page number** – like this: (McManners 2007).

For books that have more than one author, list the first name mentioned, et al, and the date (Nesbitt, et al. 1984). If the book does not have an author, use the name of the book and the date – like this: (The History of Mining in Nevada 1978).

For multi-volume or multi-entry works such as an encyclopedia or dictionary, site the entry and the copyright date of the work – like this: (“Aluminum” 2012). This is also how the articles will be listed in the Works Cited, first by the name of the article, and then the rest of the source (see below).

Works that do not have a copyright or publishing date should be followed by “n.d.”, otherwise, always use the date, **never the page number**.

When you document an Internet site, use either the title of the article or the title of the web site, and the date – like this: (“Fat Substitutes” 2007). NEVER USE THE URL in your internal documentation.

Works Cited – Samples

(Not in alphabetical order, but in the order they occur in your paper!)

“Comstock Lode.” The New Encyclopedia Britannica. 2009 ed.

Craighead, F. and Craighead, J. How to Survive on Land and Sea. U.S. Navy: Annapolis, Md., 1986.

McManners, Hugh. The Complete Wilderness Training Manual. London: Dorling Kindersley, 2007.

Nesbitt, P., Pond, A. and Allen, W. A Pilot's Survival Manual. Reinhold: New York, 1984.

“Aluminum.” Merriam Webster's Collegiate Dictionary. 2012 ed.

“Fat Substitutes.” Internet. April 10, 2007.

<<http://www.nutrition.psu.edu/undergrad/courses/nutr251/chapt4-8.htm>>